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COLOUR
APPLIED
TO
DECORATION

THE

PRINCIPLES OF COLOUR

APPLIED TO

DECORATIVE ART.

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BY

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THE PRINCIPLES OF COLOUR.

In the comments in the public journals on the application of colour to the new Building in Hyde Park, it has generally been assumed, that coloured decoration having been so little practised of late years in this country, we have no established principles to guide us, therefore all attempts now made can only be considered experimental.

Anxious, as an artist, that the introduction of coloured decoration in this country should be successful, and that the system of painting our public buildings in uniform dull monotonous flat tints may have an end, I have supposed that an attempt to investigate the principles on which the works of the middle ages were accomplished, would not be deemed inappropriate at the present time.

In the most successful decorated interiors of France, Belgium and Italy, the application of colour appears to have been on the same principles that guided the great painters of the Venetian and Flemish schools in their pictorial combinations. In their works, the primary colours, yellow, red and blue, are seldom employed in large quantities; they are often concentrated, and almost invariably graduated, broken, or varied, by the mixture of the complementary colours: the secondary colours, orange, violet and green, formed by the mixture of two of the primary colours, were applied in similar graduated quantities, and the greater proportions in their compositions were generally composed of the tertiary hues, formed by the mixture of three primary colours, with one predominating; or the quartiary hues, formed of the three primaries, with two or a secondary colour predominating. These hues are often mis-termed neutrals, a term that properly belongs to the various shades between white and black, in which the three primary colours are blended in proportions that balance or neutralise each individual colour. The general arrangement of colour in their representations of draperies consist in the highest lights or brightest parts being toned by the prevailing hue of the light; then the more positive tints, which are graduated into the subdued hues of the shadow, and again varied in the reflexions by subdued revivals of the original colour of the drapery, broken by the hues of the reflecting objects.

That it is difficult to find terms that will comprehend or clearly define the various classes of delicate and subdued colours, will be admitted when it is considered that there are no distinct lines of separation, but that they blend and melt into each other and form the infinite variety of hues that charm us in nature. There is more uncertainty in the definition of tints and the exact application of terms to hues, than is to be found in any other subject. Although difficult to find terms exactly to define them, it is desirable, if possible, to approximate to a correct system or arrangement. In these observations, I have regarded the various colours under the following classes and terms.

Primary Positive Colours.	**White.** **Yellow.—There are no distinct general terms for the delicate tints, those in use being borrowed from objects containing them: Lemon-yellow, Straw-colour, Primrose.** **Red.—The delicate tints, Pink, Carnation, Rosy.** **Blue.**	
Secondary Positive Colours, composed of two Primaries.	**Orange, composed of Yellow and Red.** **Purple, composed of Red and Blue.** **Green, composed of Yellow and Blue.**	**Comprehending:—** **Crimson, when the Red is in great excess.** **Violet, Lilac, where the Red and Blue are balanced.** **Blue-purple, where the Blue is in excess.**

Tertiary Hues, composed of the three Primaries, with one Primary predominating.	Citrine, where Yellow predominates.	Buff, in the lighter hues, Tawny, or Dun, in the deeper.
	Russet, where Red predominates.	Marone. Chocolate.
	Grey, where Blue predominates.	
Quartiary Hues, composed of the Primaries, with two Primaries or a Secondary Colour predominating.	Auburn, where Orange predominates.	Brown in the deeper hues.
	Puce, where Purple predominates.	Lavender for the lighter hues where Violet predominates, or the Red and Blue are balanced.
	Olive, where Green predominates.	
Neutral Tints.	Where the three Primaries are in proportions to balance or neutralise each other, of which the deepest shade is black.	

Field, in his valuable works on colours, has applied the definition "olive" to the tertiaries in which blue predominates, and Hayter, in his work on the primary colours, to the class in which yellow predominates. The truth appearing to lay between them, I have used it in its more popular acceptation for the quartiaries in which green predominates. Sir Isaac Newton, and most writers on optics, in their description of the prismatic colours, use the term violet for the intermediate colour between red and blue, and indigo when the blue is in excess; purple being often understood in the present time to denote the latter hues. The tints from the indigo plant, as prepared for the artist, have a greenish tinge.

Instead of olive for the subdued blue shades, I have substituted grey, for want of a better term; the shades between white and black, for which the term grey is often used, being sufficiently defined by the term neutral. To these are added the terms for the quartiary class of hues in which the compound colours, orange, violet and green, predominate: auburn, brown, lavender, puce, olive.

In proof of the difficulty to find definite recognised terms for tints and hues, may be mentioned Johnson's description of Brown: "the name of a colour compounded of black and any other colour;" also his other descriptions, "Puce, of a dark brown colour," and

"Pink, a colour used by painters;" and Sir Isaac Newton writes, "This white spot was immediately encompassed with a dark grey or russet, and that dark grey with the colours of the first iris."

Brown is generally understood as the denomination of warm subdued hues, in which yellow or red predominates; I have, therefore, used it for the deeper hues in which the intermediate orange is the predominant colour.

I have used Field's precise definitions of the terms, tint, hue, shade and tone, terms generally employed indefinitely in descriptions of colours: tint, for gradation or mixture of colours with white; hues, for mixtures of primary colour with a secondary, or for variations of colour, independent of strength, light or dark; shade, for the mixture of colours or hues with black: the tertiaries and quartiaries are shades of the positive colours. Tone, expresses the predominant ruling colour or hue in a combination.

In practice, the mixture of an opaque white with another colour, does not truly give the delicate tints of the colour; as the addition of water to the tints in water-colour painting, it always cools them or renders them bluer in hue. The mixture of opaque white with black gives grey, and not the true intermediate neutral shades. Also semi-transparent light tints, though of warm colours, will cool or grey the under rich warm hues.

Of the positive primary colours, it is difficult to find distinct types of each in nature unmingled with the others, and we must speak of them relatively. Thus, if we assume carmine to be the type of pure red, vermilion becomes an orange; and if, on the reverse, we consider vermilion as red, carmine changes to crimson, or belongs to the purple class. The same relation will be found in the tints of gamboge with ochre to yellow; and of ultra-marine with cobalt, Prussian blue, and indigo, to blue. The purest unmixed primitive colours are to be found in flowers.

There can, strictly speaking, be only delicate and full tints of the primary and secondary classes; as the less positive hues, being caused by the mixture of the positive colours with their complementary hues, are tertiaries and quartiaries. We are accustomed to give the names of positive colours to hues varying from the fullest or brightest tints to very subdued shades.

In the works of Creation, the same proportion of the various classes of colours generally prevail. In the bright skies of southern climes, where appears the greatest quantity of a primitive colour to be found in nature, the blue is concentrated at the zenith, from whence it graduates into the tertiary or quartiary hues of the horizon. In sunrise or sunset the combinations of the blue with the yellow, orange, or red tints, are effected by intermediate hues of the secondary, tertiary, quartiary, and neutral classes; the effect being often heightened by the bright orange lights of the clouds being directly opposed to the complementary blue, one of the most beautiful contrasts in colour, and the subdued grey shadows of clouds opposing and giving brilliancy to the warm bright colour round the sun. At this period may be observed the beauty of gradation, buildings and other objects being often seen in deep contrast with the warm brilliant colour, the darkest portion being often directly opposed to the brightest lights with the greatest force, and never appearing harsh in nature, owing to the opposing light and shade being concentrated and gradated in strength. (Note A.)

We are accustomed to speak of the green hills and foliage of nature, but there are seldom any flat unbroken tints, the bright green of the foreground is varied by lights, reflections, and other incidents, and soon mingles with the brown olive and grey hues which compose the mass of the landscape. The various hues of corn, from the pale straw of summer to the golden tones of autumn, have distance to gradate and soften their effect on the eye, and are supported by the more subdued hues accompanying them. In the decoration of the interior of buildings we seldom can rely on distance to moderate the crude effect of positive colours, but must have recourse to other means. It is in gems, flowers, fruit, shells, birds, insects, and the smaller objects of creation, that we find the most positive colours, and then in most instances in graduated tints; the beautiful smooth and furred skins of large and small quadrupeds, and the plumage of the larger birds are of the less positive hues: in the peacock the positive colours are confined to small parts, and the greater mass of the feathers are of the more subdued hues. The same arrangement may be observed generally in the smaller birds and most insects. The most positive coloured flowers are surrounded and relieved by leaves of a comparative low key or subdued hue; the great value of which to the brighter colour of the flowers may be easily ascertained by surrounding a flower with a corresponding quantity of green, of the same key or brilliancy as the flower. The harmonious combination of colours in shells are in general of the delicate tints and rich subdued hues.

In an example, the admiration of which is not confined to artists,—the female face,—how little positive colour is to be found, the red concentrated in the lips, and blending through the carnations with the complexion; the blue only occasionally seen in the eyes, and yellow never alone or unmixed with its complementaries; the mass of the complexion being formed of brilliant, delicate, or rich tertiary and quartiary hues, supported by deeper tones of the same classes in the hair. These magical combinations of hues have been the study of artists of all countries and ages, and the successful transference of them to their canvas, the ambition of the greatest colorists; the complexions of dazzling white, happily existing only in imagination.

It is often supposed that the tertiary and quartiary hues must be dull and gloomy, but the above example, and a glance at the silks and satins most in favour, which are generally of these classes, will dispel the illusion and prove that in them may be found hues varying from the most delicate to the richest.

The eye is less excited or fatigued by small than large masses of positive colour; consequently the smaller the object, the more positive may be the tint, and in viewing small objects it is difficult to shut out of view the surrounding hues which act in support and relief of the positive colours; also the unconscious continual motion of vision suffers it to dwell less on small spaces of colour than larger masses. Dresses, draperies, and ornamental articles of manufacture, being generally seen in connection and combination with other objects, may be composed of the more positive tints in proportion to their size.

Thus we find the general combinations or arrangement of colours in nature beneficently adapted to the requirements of human vision, and the great painters of the middle ages, having discovered the principles, have applied them in the works that now command the admiration of mankind. It appears therefore, that if the principles found in nature, and adopted in the works of the greatest colorists are correct, we should use the tertiary, quartiary, and neutral hues, for the greater quantities, and reserve the primary and secondary positive colours to heighten the effect, or attract attention to the points of interest. As far as I can recall to memory the effect of various edifices, the most successful appear to have been decorated on the above principles; but the decoration of buildings like pictures, often improve, as well as suffer by the hand of time, and it is difficult to say how far the harmonious mellow effects of the older buildings, may not have arisen from the crude positive colours being softened and subdued by age, though we can generally judge if portions have been decorated in brighter tints than the rest. In the Gothic churches in Belgium and France, the greater quantity of the walls were generally left uncoloured, the subdued broken hues of the stone and rich carved wood-work, forming a relief to the more positive colour of the glass windows, pictures, and marbles; and where marbles were much used, as at St. Mark's, Venice, the greater proportions were generally of rich deep harmonious hues, and the brighter marbles reserved for the altars, shrines, &c. At St. Peter's and the other Basilicas of Rome, the marbles form intermediate hues between the more positive colour of the Pictures, Mosaics, etc., and the subdued hues of the walls. In some of the more modern churches in Italy, contrast seems to have been the guiding principle in the application of marbles, and the effect is very inferior to the older buildings. In the Italian churches that have been decorated with frescoes, the positive colours being generally confined to the draperies of the figures, leave the greater quantities to the more subdued hues, and in some, where time has broken and subdued the crude tints, as in the upper church of the Convent at Assisi, the effect is most beautiful. A beautiful specimen of the same harmonious combination of subdued hues, copied from the tombs at Zanthus, is to be seen in the Lycian room at the British Museum. In the Cathedral of Milan the vaulting had been formed of brickwork, covered with plaster, which having decayed in parts, formed with the brickwork the most harmonious combination of subdued hues. Instead of taking advantage of and copying the same harmonious colours in the decorative repairs, in 1832, the vaulting was being painted with the representation of light perforated panelling, out of character with the massy pillars supporting it.

In many of the above examples, gilding has been profusely employed, but owing, I imagine, to the various lights, reflections, and variety of effect it receives, gilding appears to be exempt from the laws that affect other coloured materials, and may be used in any quantities, and harmonises with all colours; although from its brightness it would appear to be unsuited to the purpose, gilt frames are found to harmonise with every variety of pictures, better than any other kind. The churches of our own country have so suffered from wanton violence or bad taste, that it is difficult to name any examples, though in some of the cathedrals which have escaped the flat monotonous washes of tasteless innovators, the beauty and the solemnity of the broken hues of the stone and carved woodwork may be studied, and the value they give to the rich coloured glass, I cannot add pictures, mistaken zeal having in most instances banished them from our churches. Of this effect, were it not for the glaring inharmonious white marble modern monuments, Westminster Abbey would be a splendid example. The recent introduction of monumental windows. will, if generally adopted, save the walls of our churches from being covered with monuments of different style to the building, and add colour where it is much wanted. In the painting of them the arrangement of colour in the ancient specimens should be adopted; these contain no large masses of colour as in modern glass painted windows, and the figures, etc., were not regarded as pictures, but made subservient to the general ornamental arrangement of colour in the window. (Note B.) The objections to the removal from Westminster Abbey of some of the monstrous monumental absurdities, consisting in the reverence for the memorials of departed great men, and regard for the feelings of their living representatives, might be obviated by the substitution of monumental windows. The same rich combinations of subdued broken colours may be found in some of our collegiate halls, or remaining residences of the olden time, and are generally assisted and heightened by pictures and stained glass. At St. Denis, near Paris, the positive colours are profusely used, and the altars, pictures, stained glass, and painted statues, are sacrificed in consequence. The French, in their modern decorations in general, support and relieve the positive colours by delicate or rich subdued hues; at St. Vincent de Paul, the low toned marbles of the columns occupy a large proportion of the composition, and are supported by carved oak-work. The historical and other pictures with which many of their ceilings are decorated, appear oppressive and unsuited to their place. In such situations the beauties of fine works of art challenging much attention, are lost from the difficulty and painful position necessary to view them, and if richly coloured with full positive colours and deep tones, appear heavy and overpowering, and lower in appearance the height of the apartments. Subjects for ceilings should be of light fanciful character, and painted with the lighter delicate bright tints and subdued hues. If the same class of colours are employed in the general decoration of ceilings, domes, arches, soffits, etc., and the positive colours necessary to prevent tameness of effect moderately employed; height and space, an important beauty in architecture, will be obtained. The beauties of Rubens' fine work at Whitehall Chapel are comparatively lost in its present situation. That the combination of varied hues and subdued colours excites the admiration of mankind, we have convincing proof in every exhibition and picture gallery; where buildings are chosen as subjects in themselves, and not as secondary back-grounds to other objects, it is not the newly-erected edifice with its flat unbroken tints, but the older constructions with their time-stained walls, ruins to which the weather and mosses have given every variety of varied hue, cottages often possessing no beauty of form, and deriving all their charms from the rich variegated colours painters delight in. That this admiration is not confined to the English and their artists, many of the works of the Flemish painters are a proof. Painters select subjects from the lower classes of all countries, as much for the varied broken hues of their old worn dresses, as for any other picturesque quality. The beauty of subdued colours may also be seen in the Greek fictile vases.

Though it is proved that the Greeks employed colour in their temples, I believe it was confined to points or small quantities, and that the greater mass of the beautiful material with which they were constructed, was left untinted.

The application of decorative colouring is sometimes supposed to be confined to Arabesques, foliage, and other ornaments, whereas it comprehends the proper use and distribution of every colour and material used in the embellishment of buildings, and advantage may often be taken of the hue of the materials employed for constructive purposes. The beauty of gems, marbles, and many other objects, consists in their transparency, or their allowing the sight to penetrate beneath the surface, and often from under-colours appearing through transparent upper tints. The beauty of delicate and rich complexions, arises from the transparent nature of the skin, and the transparent brightness of the eyes of all living animals, may be contrasted with the dull opacity of those organs in death. Painters consider the obtaining this transparency in their works, as one of the most important and difficult points in art. To accomplish it, they often paint their transparent hues over other colours, allowing the under tints to show through, instead of mixing the colours into one opaque tint; by a careful choice and use of the ground or surface to be painted on, letting it show through the colours, and by using various transparent vehicles to mix their colours in. The great beauty of many pictures is caused by the judicious employment of the opaque, semi-opaque, and transparent hues. Although the value and beauty of many materials depend on this quality, and the richness of broken or variegated hues is acknowledged, we take every care to conceal, cover, and obliterate them on the exterior and interior of our buildings, by opaque monotonous coverings of paint and coloured washes; compare a statue in marble with a painted cast of the same, and the beauty of this transparency of surface (though in the marble of the statue the transparency may be extremely slight), will be universally admitted. The coloured marbles having this quality and variegated broken and subdued hues, would be invaluable in decoration, were not the material so expensive. The use of imitations in architecture has been lately strongly condemned, perhaps without due consideration. A bad imitation of any material is always offensive, and if the imitation is adopted for mere deception, it is equally subject to censure; but if we can obtain the beauties and qualities that we admire in some scarce material, by the mixture and adaptation of more abundant materials, we are increasing the means and power of obtaining beautiful and rich effects. Art stamps a value on the meanest material, and it is a barbaric taste that estimates beauty in an object by the value or scarcity of the material composing it. The qualities of marble have been successfully obtained in other materials, and may be advantageously used. (Note C.) The beautiful varied hue and quality of ivory, would be invaluable if it could be obtained in sufficient size and quantity. Any composition possessing the same appearance will be an addition to the means of art. Alabaster acquires by age a variety of beautiful warm and cool subdued hues. The varying prismatic reflections seen in mother of pearl, crystals, etc., have not been much employed for decorative purposes. This peculiar reflective quality, which is found in the plumage of many birds, also in insects, and shells, imparts vivacity and brilliancy to the colours, and often harmonises the more positive tints. If it can be imitated, advantage may be taken of it in giving brilliancy and variety to light and splendid decorations. Woods possess the transparent quality in very slight degree, but are beautifully variegated. In the most common and cheap kinds, we can scarcely discover a space of a few inches unbroken in hue, and they would if protected by some transparent varnish, be found of more service, than from their being concealed by paint, is generally supposed.

The great use of the cheap stained papers imitating granite, marble, and oak, is owing to their varied hues being more agreeable to the eye than flat tints, and not to the vulgar purpose of deception. The size of many of our buildings has been lessened in appearance by the variegated broken hues in the material, or produced by time, being covered with paint. When I last visited St. Paul's the stone-work of the interior was being painted over. Highly polished and dull surfaces, with the intermediate gradations, may be of service, in the use of which it must be considered that dull opaque surfaces diffuse the most light, and are necessary where that is required, while polish brings the transparency and colours of materials to view, and causes them to reflect the colour of other objects.

Glass mirrors so much used in decoration absorb much light. As a decorative material glass has hitherto not received sufficient attention, it is capable of being used in a variety of effective ways. The gradations of glossy and dull surfaces with their effects, may be observed in satins, silks, velvets, and woollen fabrics. By these general principles every variety of effect, from the most brilliant to the most solemn, can be obtained. Chromatic melodies may be composed (if I may use the expression), of a few tints, bright, delicate, or full-toned, or all classes of colours may be combined in the richest harmonies. We can subdue and blend the colours to one prevailing tone, as in the works of Rembrandt, or heighten their effect by small portions of the complementary colours, as practised by Cuyp; and we may concentrate and contrast the positive colours on points of interest, and graduate them through the tertiary, quartiary, and neutrals, as seen in the works of Paul Veronese, Titian, Rubens, Ostade, Watteau, and Etty. The bed-chamber of Marie de Medicis, at the Luxembourg, decorated by Rubens, Nicholas Poussin, and Philip de Champagne, is a splendid example of this class of composition. Greater brilliancy and vivacity may be given to a bright mass of colour by a point of brighter light; richness and strength to a mass of rich hues, by a focus of greater depth.

White may be used as a principal, or to give value to the delicate and positive tints: it is seldom seen in its pure state; the hues known as French white, pearl white, etc., are delicate tints of colour. The plumage of the swan, apparently one of the whitest objects in nature, in sunlight exhibits a combination of delicate tints of exquisite beauty, the lights of delicate warm hues, and the shades of pearly grey. Snow also exhibits delicate tints. Chromatic harmonies, to be perfect, require the presence of the three primary colours in pure unmixed tints or blended hues. The highest are composed of the three primary colours, yellow, red, and blue, and may be composed of tints of the same force, or the strength of one may be balanced by lighter tints of the others in greater quantities. The next scale is composed of the secondaries, orange, violet, and green, and may be varied as the former. The tertiaries, citrine, russet, and grey, form the next scale, and the quartiaries, brown, with puce and olive, a lower or more subdued scale. The neutral or negative shades composed of the three primaries, may be considered the lowest scale.

The effects of nature, or the combination of colour in natural objects, are not confined to these systematic arrangements, but are infinitely varied by simple and intricate harmonies combined from them all. They may be composed of tints of one of the positive primary colours, and the other two primaries combined in the complemental hues of the first; or they may be composed of all the classes of colour, including white and black; the harmony of the composition depending on the proportions of the three primary colours.

COMPLEMENTAL OR HARMONIC CONTRASTS.

White . .	Black, and all colours.
Yellow . .	Violet, Lavender, Puce.
Red . . .	Green, Olive.
Blue . . .	Orange, Auburn, Brown.
Orange . .	Blue, Grey.
Violet . .	Yellow, Citrine, Buff, Dun.

Green	Red, Russet, Marone, Chocolate.
Citrine	Purple, Violet, Lavender, Puce.
Russet, Marone, and Chocolate .	Green, Olive.
Grey	Orange, Auburn, Brown.
Olive	Red, Russet, Marone, Chocolate.

The complemental hues to a colour are given in the above scale, from the most positive colour to the most subdued shades, as the harmony depends on the quantity of the opposing tints; thus:—blue may be balanced by a small quantity of orange, a greater quantity of auburn, or a larger mass of brown: and it must be remembered that the auburn, or brown, contains a portion of the complemental blue in proportion to their negative or subdued qualities.

The proportional quantities of the primary colours necessary to balance or neutralise each other, are given by Field as obtained by the metrochrome:—yellow 3, red 5, blue 8, orange

8, purple 13, and green 11. Hay gives the proportion yellow 1, red 2, and blue 3.

The proportions of the colours composing white light obtained by refraction, as they vary according to the various refractive powers of the lens used, and having been calculated according to the space occupied by each colour without regard to their force, cannot be relied on so truly as the proportions obtained by the metrochrome.

The terms of the secondary, tertiary, and quartiary colours being general terms and representing various mixtures or quantities of the composing colours, the tint of the complementaries must vary accordingly. When a green has blue in excess, its complementary orange, or auburn, must have more yellow in its composition, and when the green is of a yellowish hue, the contrasting orange, auburn, or brown must contain more red.

The effects of nature are composed of the three primitive colours combined in the hues of the other classes, and decided hues of one are generally balanced by more decided hues of the complementaries. In the white daylight the shadows are very negative or neutral; they partake of subdued violet hues, in the yellow light of the sun; and at sun-set the blue of the shadows becomes more decided in opposition to the orange light. The balance in nature is seldom maintained by corresponding colours of the same power, but the intensity of one is opposed, and its brilliancy increased, by larger masses of more subdued complementary hues. I believe that the yellow and orange flowers and fruit are generally accompanied by leaves of olive, in which blue is in excess, and that the red, violet, and blue flowers have leaves of olive, in which yellow predominates. The season of the year prevents me from verifying the fact, but the subject is worthy of investigation.

When the complemental colours are balanced in force, the effect is not so impressive as when one predominates. Sir Charles Lock Eastlake, P.R.A., in the notes to his translations of Goethe's Theory of Colours observes, "Every treatise on the harmonious combinations of colours contains the diagram of the chromatic circle more or less elaborately constructed. These diagrams, if intended to exhibit the contrasts produced by the action and re-action of the retina, have one common defect. The opposite colours are made equal in intensity; whereas the complemental colour pictured on the retina is always less vivid, and always darker or lighter than the original colour. This variety undoubtedly accords more with the harmonious effects in painting."

"The opposition of two pure hues of equal intensity, differing only in the abstract quality of colour, would immediately be pronounced crude and inharmonious. It would not, however, be strictly correct to say that such a contrast is too violent; on the contrary, it appears that such a contrast is not carried far enough; for though differing in colour, the two hues may be exactly similar in purity and intensity: complete contrast, on the other hand, supposes dissimilarity in all respects."

"In addition to the mere difference of hue, the eye, it seems, requires difference in the lightness or darkness of the hue."

With due respect for the opinions of so eminent an authority, may we not consider the complemental colours pictured on the retina, rather as the attempt to restore the harmonic balance, than as examples of the harmonic balance being obtained, and whether the intensity of one colour is not compensated by the increased weakened quantity of the others, in the subdued complemental hues, as generally observed in the effects of nature?

To the exact predominating proportion of one primary necessary to produce the most complete harmony, perhaps it is not possible to obtain universal consent; but I believe that an investigation into what may be termed decreasing harmonies will show that it is not far removed from the neutralising proportion of the colours, and that the harmony of a combination of colours decreases in proportion to the increasing predominance of one primary over the other two. If we examine the combinations of purple with green, in which yellow and blue are balanced, crimson, or the purple, in which red greatly predominates, forms with the above green a beautiful harmony. Violet and the same green, forming a combination in which blue greatly predominates, and the red and yellow are balanced, is not so harmonious. The combination of blue-purple, with the same green in which blue is in great excess, is less agreeable, and requires the yellow in the green to be increased. The combination of blue with the same green will be inharmonious in consequence of the absence of the red. The opposition of various tints of the same colour, or the gradation of a positive into more delicate tints, are beautiful, but require the opposition of the complemental colours to form the harmony. The shades of a colour, or the mixture of a colour with black, as they contain the complemental colours, form harmonious combinations; the harmony increasing in proportion to the depth of the shades or the greater quantity of black contained in them. Thus, orange with its shades, auburn and brown, would form a minor harmony. The observations on the combinations of violet and green, apply to the combinations of green with orange, and orange with violet, and to the compounds of the quartiaries. In consequence of the above principle, black harmonises with all colours; its harmony decreasing in proportion to the quantity of blue they contain, as blue forms the greatest proportion in the composition of black.

An engraving printed in black ink, or a subdued hue, is more agreeable than one printed in either yellow, red, or blue, as the black or subdued hues contain the three colours; and the appearance of a landscape through yellow, red, or blue glasses, soon fatigues the eye, and appears monotonous.

The gradations of a primary into a secondary colour are very beautiful, but require the complementary colour to contrast them.

It may appear a contradiction to the above principle, when the predominant colour is one of the secondaries, orange, violet, or green;

but I believe that the harmony will be found more perfect when one of the primaries composing the secondary is in excess. The compound colours of nature have generally one primary predominating.

The harmony or discord of opposing colours is only seen in its full force when unconnected with other tints, and may be weakened or lost in a mass of various hues: thus, two opposing hues of the same power may be used, if subordinate to a third. The neutral tints intermediate between white and black, are valuable in giving brilliancy to the other classes of colours. The selection of the predominating colour or hue should depend on the character of the decoration. The quantities of neutralising colours must be judged by the eye; no great work of Art was ever produced by recipe; the perceptions of the organs of vision of mankind, for the beauty and harmony of colours, vary, probably, more than their organs of hearing for the tone of sounds, and the measurement of colours, or the relative value of tints and hues, appear less under our control than the divisions and value of sounds. How useless would be the attempt to analyse the quantities of the primary colours contained in the intricate various tints and hues of a fine picture! No great colorist ever existed who did not possess a sensitive organ for colour: and although an artist may derive invaluable aid from science, he must endeavour to educate his eye, and preserve its healthy perception, by the continual contemplation of nature, and the great works of his predecessors.

The late great colorist, Etty, repeatedly informed me that he was incapable of mathematical investigation. The exquisite beauty of his works did not arise from minute calculations, but from his immediate perception of the value of colours. Others might discourse more learnedly on tints and hues, but who could approach him in the harmonious combination of all classes of colours? The late exhibition of his works proved that he was equally master of the most brilliant, rich, or solemn harmonies of colour, and that he ranked with the greatest colorists the world has produced. All objects in nature, animate or inanimate, offer harmonious combinations of colour for the study of the artist. Without entering into the question of the comparative civilisation of the ancient Egyptians, Assyrians, and modern eastern nations with Europeans, or their relative perception of beautiful colour, may we not account for the supposed greater use by them of the positive primary colours by the more positive scale of colour of eastern skies and vegetation?

The colours of the Egyptian antiquities, and the copies from those existing in Egypt, which I presume are faithful, are not very bright or positive, and are supported by the subdued russet hue of the figures, and the black of their hair. The modern manufactures of eastern nations generally contain rich subdued hues. The rich effect of the Turkey carpet arises from the positive colours being broken or divided into small quantities, and supported by more subdued hues. Indian shawls often contain black and dark hues in considerable quantities, and the colours in Chinese porcelain are seldom very bright.

Forms are generally governed by the architectural composition or construction of the building. Care should be taken by the arrangement of colour, to support the principal lines, and it may be used in developing the minor details of the architecture. The sculptured forms of the Campanile by Giotto, at Florence, and the Cathedral at Pisa, are overpowered and obscured by the opposing forms of the coloured marbles. As a painter often composes the chiaroscuro of his picture by the combination of the light and dark colours, and often in contradistinction to the light and shadow, which arrangement is consistent with truth, and often seen in nature where objects are composed of different degrees of strength, and variety of colour; so the decorator can supply the want of light and shade of the building by his arrangement of light and dark colours. In effecting this, he must remember that yellow has the nearest relation to light, and blue with shade. Oppressive light portions may be subdued, if required, by the employment of cool quiet hues, and the dark shadows relieved by the use of warm light tints. The brighter and more positive colours may be used with advantage in the darker recesses, as the shade subdues and reduces them to tertiaries or quartiaries. Glass mirrors, and other reflective materials, are also useful in giving transparency to the shadows.

The combination and opposition of warm with cold colours assist the composition; orange is the hottest colour, and its complementary, blue, the coldest; the degree of warmth and coolness in hues depending on the proportions they contain of those colours. In adding richness to masses of subdued hues or combinations of colours, the concentrating deeper shades should be warm, and be increased in that quality in proportion to their depth. Blue seldom appears rich as the predominant depth in force or quantity. The character of the decoration in a composition should depend on the purpose of the building. Pictures are compositions complete and independent, except when employed as decorative accessories; but the decoration of a building must often be made dependent on, and subordinate to, the objects they contain. Museums, picture and sculpture galleries require this character of embellishment. The decoration of some buildings should be regarded and treated as backgrounds to constantly changing groups of animated beings. In churches, where all around ought to be made, as far as possible, to impress us with humility, the decoration should be designed independent of the living masses; in the embellishment of them the rich subdued hues are most conducive to solemnity. The positive colours are most appropriate in palaces, halls of legislature, or of public companies, where magnificence is required, and the colour should be more quiet and subdued in courts of justice, museums, and buildings devoted to study: in those of business, the decoration should be of large and subdued character, and not frittered away in trivial ornament. The brighter and more positive tints may be employed in ball-rooms and galleries for public recreation; the colours on the walls being fixed will be subdued and rendered secondary by the vivacity motion imparts to the dresses of the ladies, and the sombre, triste costume fashion has compelled her male votaries to assume, may be regarded as the dark of the composition. It is a question if the brilliant embellishment of the auditories in theatres may not detract from the splendour of the scene; though as the attention is absorbed and fixed on the stage during the performance, and as there are generally means of reducing the light in the auditory, and concentrating and increasing it on the scene when required, the point may not be of great importance. The variety of brilliant and more quiet effects caused by the alteration of light, may be well observed at the Italian Opera House, in the Haymarket; it is a most satisfactory example of brilliant rich decoration. The composition might probably be improved by more blue being introduced to balance the beautiful amber tints of the drapery: as it is, it forms a brilliant contrast to the absurd decorations of the other Italian Opera House, in Covent Garden, the ceiling of which was painted at Paris, without, I presume, the artists being aware of the form of the house, or the character of the decoration of the other part. The composition of the ceiling is circular, and the form of the house being elliptical, required a portion of the ceiling to be cut away. It is composed of deep-toned colours, representing marble and bronze figures, most heavy and oppressive in effect, and inconsistent with the light colours and petty details of the rest of the building. The St. James's Theatre and the Lyceum are examples of elegant decoration. The effect of the Princess's Theatre is rich and harmonious, though slightly injured by the last alterations. As the embellishments of theatres are often changed, these remarks, of course, are only applicable to the present time.

The embellishment of private residences will depend on the taste of the proprietor, but each apartment should receive its appropriate decoration. The vestibules, staircases, corridors, ante-rooms, etc., ought to be subordinate; and in the character of the decoration of them, the spectator should be prepared for the increased enrichment of the principal apartments. The banquetting-rooms should be embellished with warm rich colours, and the saloons and boudoirs with the more brilliant and delicate tints; the more subdued and quiet hues being reserved for the libraries. The particular employment of the above colours must depend on the size, aspect, and situation of the apartment. In small apartments large quantities of positive colour and deep hues are oppressive; they require distance to vary and soften their effect.

If the rooms have a southern or western aspect the cooler hues may be employed, but if a northern or eastern aspect, warmer colours are required in the embellishment. In town, the agreeable and refreshing hues and harmonies in which green and olive predominate, may be occasionally used, but in the country where those colours pervade the surrounding vegetation, they should be more sparingly employed. In both public halls and private apartments, by employing the more positive, richer, and deeper hues, on the floors and lower portions, lessening the proportions in the upper parts, and using the more delicate tints and subdued hues on the ceiling, the greatest space and size will be given to the composition. The remarks of Sir Charles Lock Eastlake, P. R. A., on the embellishment of floors, contained in his interesting letter on the "Decoration of a Villa," published in the contributions to the literature of the Fine Arts, are so just, that I cannot resist quoting them.

"The pavement of the halls might be enriched, but I can hardly approve the occasional practice of the ancients in placing mosaic 'histories' under their feet. The forms and hues should be merely calculated to gratify the sight."—"A pavement, for instance, however decorated, should still express the character of firmness and solidity. For this reason I would exclude even the lowest kind of life (that of plants), and every approach to perspective: geometrical forms would thus be alone admissible. The variety is infinite; but even here I would again avoid abrupt and irregular contrasts of colour, which have sometimes the effect of making the evenness of the surface doubtful. The last consideration is, indeed, applicable to carpets."

It is often necessary to colour the decorations of a higher and brighter scale, particularly in English towns, as time soon subdues them; but then every tint or hue should keep its appropriate place, and be made subordinate to the principal objects.

The most beautiful combination of form and colour in decoration will derive its principal charm from being appropriately employed.

To attempt to give minute combinations of colour or favourite harmonies would be to endeavour to make individual opinion the guide, which few would recognise.

Variety, if judiciously employed, is equally a source of pleasure in decoration as elsewhere. Mankind in all ages have been too prone to confine their admiration in art to some particular style, and to make that style the test of other classes of composition. In the history of all Art, how often have we seen some original thinkers producing effects contrary to the recognised laws of the day! At first the new effects are viewed with astonishment, and generally condemned; then, as the world will recognise beauties and truth in opposition to conventional rules, the laws that guided these daring innovators have to be discovered and added to the previous code.

Perhaps the failure of many English works of Art may be caused by our architects, sculptors, and painters acting too independently of each other. To this cause, I believe, may be traced the absence of sculpture, painting, and picturesque arrangements in many buildings, the inappropriate character of most sculptured monuments to the buildings they should embellish, and the inaccurate employment of the styles of architecture in the backgrounds of many paintings. The Italian artists of the middle ages often practised two or three branches of the Arts. It would not advantage Art to return to that practice, as the beauties and difficulties of each department are sufficient to occupy the study of an individual life; but architects, sculptors, and painters would benefit by consulting each other on those points that have occupied their more immediate attention.

Some years since, I was requested by a lady to make inquiry respecting placing a monument, by one of our greatest sculptors, in Westminster Abbey; as Mr. Blore was the architect to the Abbey at the time, I applied to him, and was much surprised by his informing me that he was never consulted by the Chapter as to the appropriate situation or style of monument admitted. They manage these affairs better on the continent.

The preceding observations have been confined to interior decorations, as the climate of this country prevents the application of artificial colouring to the exteriors of buildings to any great extent; the colours being generally dependent on the hue of the materials chosen for constructive or economic purposes. The interior of an apartment may be made, with its contents, a complete composition; but the exterior of a building generally forms only a portion of a combination, the surrounding accessories being often beyond the control of the architect. The attention in exterior design has been, therefore, principally directed to the forms; but, where circumstances have allowed it, a judicious selection and employment of the hues of the various materials have much enhanced the beauty of the building. Unfortunately, these attempts to make a pictorial use of the colours of the materials, often successfully accomplished, are soon obscured by the smoke in the metropolis and its neighbourhood. It is singular that all attempts to overcome this pest by legislative enactments have failed, although it has been repeatedly proved that it may be materially diminished. The inhabitants of London appear to regard this enemy to cheerfulness as invulnerable, and fly from its oppression whenever there is the slightest possibility, instead of supporting those who are struggling to overcome its influence. It is to be hoped, that, as the public attention has been directed to the sanitary state of the metropolis, and we have now Boards of Health, this evil may be doomed, like Smithfield and other nuisances, to destruction. Success in diminishing the quantities of smoke in the atmosphere will do more to improve the beauty of our buildings, both internal and external, and aid the application of coloured decoration, than any other means. A walk through our streets on a summer's morning, before the chimneys of our manufactories and steam-vessels on the river, have commenced to vomit forth their defiling clouds, will show that the atmosphere of the metropolis is not naturally much worse than some of the continental towns; and that we have to thank ourselves for the evils we endure.

Portland stone, being of a white or neutral hue, seems less injured in colour by the smoke than other materials. Bath, and warm-coloured stonework, soon become of a foul dismal hue under its influence; the various colours of brickwork soon lose their distinctive hues, the red resisting the longest.

In the country, the judicious employment of the colour of the materials in a building, add materially to the beauty of a landscape; the agreeable effect of red brickwork among masses of green foliage is universally acknowledged, and the colour of most varieties of stone consisting of the quartiary class of subdued hues in which orange slightly predominates, or if the stone is of grey or neutral hues, appearing of warm hues under the influence of sunlight, harmonise with the olive foliage and blue sky, or grey clouds. The slates of a blue-purple hue, are the most disagreeable and discordant of building materials to harmonise in colour with the landscape; unfortunately, they are better adapted than those of a greenish hue for constructive and economic use. How exquisite is the appearance of the stone-slate, partly covered with warm orange masses, in some of the old mansions. Cement covering for brickwork is objected to by many as aping stone, and giving a false appearance to buildings; but as cement is found to assist in keeping the walls dry, and as it often partakes of the harmonious hue of the stone of which it is composed, if truly used, and not disguised by lines representing courses of stones, it is a useful material for colour; if, from the nature of the material of which it is composed, it is a bad colour, let it be coloured of some agreeable hue that shall not appear as imitative of another material. I have recommended in exterior decoration the application of imitative marbles; it is not that I undervalue truth in architectural decoration, but that I cannot find any material, either natural or artificial, that shall possess the same beautiful variegated and transparent appearance without being an imitation. When at St. Peter's, Rome, an architect informed me that the principal pilasters in the interior were only plaster; as they are most perfect imitations of marble, I was incredulous, until convinced by close inspection. At the time, I was vexed to find it true, and wished he had not enlightened me; but on reflection I was obliged to confess that the effect to the eye was the same as if they were truly marbles.

In the artificial colouring of cement in the exterior, the warm class of hues in which orange is the predominant colour, will harmonise more generally with the blue and grey of skies, and green and olive of landscape, than any other class of hues. On the exterior of the Ducal Palace of St. Mark's, Venice, the orange brickwork forms so beautiful a combination with the blue sky, that few artists can resist bringing away a recollection of it in their portfolios. At sunset, we see the same beautiful hues on our buildings in this country, and can witness how much they add to the charm of the landscape. As it may be objected that the warm hues recommended would be too exciting for the eye if used in large masses, we must recollect that buildings seldom form the larger masses in landscape, and when they do, we can diminish the force of the hue in proportion to the quantities; also that the larger masses of blue, green, and grey, surrounding them, will counteract that effect. Cement covering might be improved by stamped ornaments in low relief, as in the diapered ornament on the walls of decorated pointed architecture. The architects of the Norman style well understood the decoration of surfaces with ornament of low relief, and their contrast and combination with more projective enrichment. The beauty of this variation of surface is also to be found in architecture of the cinque-cento style. For interiors, a slight varied surface, as in the embossed leather decorations, by its flickering light and shade, and varying effect, enriches and gives vivacity to the decoration of walls.

We are now threatened with an iron age, and are to witness wonders in art before which the existing marble, stone, and wooden monuments of architecture are to sink into insignificance. As yet, the constructions in which iron has been the principal agent, have very little pretensions to beauty; indeed, they chiefly serve to show that the designers had a contempt for æsthetic principles, and the deformity of works in which attention is confined to constructive utility. Many in the present day consider the study of æsthetic principles as superfluous trifling, and, confounding beauty with ornament, think the addition to large constructive works an unnecessary expense. Such opinions do not prove that the addition of beauty in design is useless, but that the possessors are incapable of appreciating it.

A study of the true æsthetic principles will prove that the addition of beauty often adds nothing to the expense of the work, and will sometimes prevent an extravagant waste in endeavouring to correct the original deformity of design in the principal forms by overloaded ornament. The great tubular bridge over the Menai, wonderful and admirable as it may be as a constructive work, possesses little beauty of form; and the copies of it in some of the railway bridges across our thoroughfares, are positively hideous. The deformity, consisting in the leading or predominant form, might, I believe, have been diminished without much additional cost.

This leading form being a right-angled parallelogram, with abrupt junctions of parallel and vertical lines in internal angles, is never seen on a large scale in nature. The architects of the Egyptian, Grecian, and, I believe, I may add all existing styles of architecture, have universally harmonised the contrast of vertical and horizontal forms in internal angles by mouldings, spandrils, brackets, or some kind of projecting intermediate forms: and such addition, in the present instance, if it might not be made conducive to real strength, would certainly have added to the apparent strength.

In beauty of design, the mind should be soon satisfied with the appearance of strength, and must not be required to convince itself by a laborious reasoning process. Terror, if productive of awe, is also destructive of beauty. The iron arched bridges across the Thames are not to be compared to the stone structures for grandeur or beauty. The suspension bridges are so unlike the others, that they do not so strongly provoke comparison, and the forms seem so suited to the material, that they possess distinct beauties.

In them, the leading form, the graceful suspending curve, strongly predominates over the abrupt angles, and softens their effects; also, in the best examples, the roadway is curved, by which the violent contrast with the vertical lines of the piers is much diminished and improved. It has been lately discovered that the Greeks curved the horizontal lines in their temples: may not the above example show their reason for doing it? If new beauties in architecture are to be realised by the use of iron, it will not be by casting it into the forms of Gothic columns or mimicking the constructions of other materials, as in the modern spire of Rouen Cathedral, but by studying and developing the forms most suited to itself. The Crystal Palace is admirably designed for its peculiar purpose, but I imagine repetitions of it would soon appear monotonous. Conservatories are seldom very pleasing objects in themselves, the best designed often resembling large bird-cages, and can only be regarded as frameworks to the beauties they contain. It is some relief to hear that the material is stronger if used hollow in columns and beams, than if used in compact bars, as it may slightly check the tendency of the interiors of iron constructions to assume the appearance of spider's webs. As the colour of iron is so very dismal, and it requiring some covering to protect it, it is certainly more consistent with architectural truth to paint it some agreeable ornamental colour that is not deceptive, than to make it represent bronze, or other material. In the criticisms on the painting of the Crystal Palace it seems to be forgotten that, from the nature of the construction, there can be no large surfaces, and therefore the positive colour must be much broken in quantities and varied, the positive colours on the columns and bars near the eye being relieved by the spaces they enclose; these spaces being occupied by the colours seen in various distances, will form graduated hues which will support and soften the positive colours of the foreground. The enormous length of the building prevents it being entirely subject to the same laws that govern the more common sized interiors, and requires it to be treated on the principles that govern exterior decoration, where the decorator can rely on distance to aid his effects.

Forms in which lines are the predominant characteristic are the distinctive features of iron structures, while the constructions of stone, brick, and woodwork, have the addition of surface with all its capabilities of embellishment. If surface is added to iron structures in the same material, it has to be covered with paint or some other material, while stone, brick, and wood, if properly used, need no concealment.

To have designed a structure like the Crystal

Palace, generally, if not universally, allowed to be better adapted for its purpose than the previous designs of European professors, is certainly a proof of great abilities in the author, and needs not the attempts to elevate it, by the unjust comparison with existing edifices, or censures of the architectural profession.

In the embellishment of buildings of all styles, the decorator will generally be most successful if he can discover existing beauties either in form, light, shade, or the colour of the materials, and develop and sustain them by characteristic and appropriate enrichment.

NOTES.

Note A.

THE monotonous, inharmonious contrast of two long lines of opposing tints, is often softened in Art by increasing the force of the contrast at a particular point; and the confusion and discord of a number of colours may be subdued by a point of more positive colour. In sculptured enrichment, confusion may be overcome, and breadth given, by a stronger-marked predominating form.

Note B.

THE superiority of the harmonious combination of the positive colour in ancient glass windows, I believe to depend more on the colours being divided into a greater number of small portions than in the use or opposition of particular colours; also, the glass being used in smaller panes than in the more modern windows, causes a greater use of the dark lead framework, which, by its contrast, adds brilliancy to the glass.

Note C.

As the sculptured enrichment of marble confuses, and is confused, by the varied forms and colours in the variegated species, it is usual to confine the use of enrichment to the plainer marbles, and use the richer for smooth surfaces, as the shafts of columns, and the frieze of the entablature. In opposition to the rich variegated shafts, the delicate light and shade of white marble capitals, and other enrichment, are lost, appear vapid, and lose their proper importance; this may be obviated by a judicious gilding or colouring of the principal forms or grounds of the enrichment, the application of which requires great judgment, or the details will be obscured and injured, instead of being heightened and improved. The deep incision of some of the principal forms or points in the sculpture, as in some of the ancient specimens, will also clear the effect.

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